UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

Via Electronic Mail Only

Date in Electronic Signature

Jeremia Pollard, Esq.
Counsel for the Town of Lee Selectboard
Hannon Lerner P.C.
184 Main Street
Lee, MA 01238

Re: Response to Request for EPA's Evaluation of Rail Usage
Housatonic Rest of River
GE-Pittsfield/Housatonic River Site

Dear Attorney Pollard:

This letter is in response to the Town of Lee Selectboard's request to the United States Environmental Protection Agency (EPA) for past information regarding the evaluation of the use of rail in the Housatonic River Remedy.

There is extensive discussion of EPA's evaluation of rail in the Administrative Record for the Final 2020 Permit, which is publicly available. These include, but are not limited to, the following documents which are posted on EPA's website for the GE Pittsfield/Housatonic River webpage (https://www.epa.gov/ge-housatonic):

- August 2012 – Revised Comparative Analysis of Alternatives, Appendix B to Regional Response to NRRB Comments on the Site Information Package: https://semspub.epa.gov/work/01/519424.pdf
- May 2014 Comparative Analysis of Remedial Alternatives for the General Electric (GE)-Pittsfield/Housatonic River Project Rest of River: https://semspub.epa.gov/src/document/01/557091
- June 2014 - Statement of Basis for EPA's Proposed Remedial Action for the Housatonic River "Rest of River" https://semspub.epa.gov/src/document/01/558621
- October 2016 - Response to Comments on Draft Permit Modification and Statement of Basis for EPA's Proposed Remedial Action for the Housatonic River "Rest of River" GE-Pittsfield/Housatonic River Site: https://semspub.epa.gov/src/document/01/593922
- 2020 - Statement of Basis for EPA's Proposed 2020 Revisions to the Remedial Action for the Housatonic River "Rest of River": https://semspub.epa.gov/src/document/01/647211

- July 2020 - Determination on Remand and Supplemental Comparative Analyses of Remedial Alternatives for the General Electric (GE)-Pittsfield/Housatonic River Site Rest of River: https://semspub.epa.gov/src/document/01/647210
- December 2020 Response to Comments on EPA Draft 2020 Permit Modification to the 2016 Reissued RCRA Permit and Associated Statement of Basis for EPA's Remedial Action for the "Rest of River" Portion of the Housatonic River: https://semspub.epa.gov/work/01/650441.pdf

For your convenience, the attachment to this letter includes text extracted from these documents that are relevant to EPA's evaluation of rail.

Lastly, the selected remedy for the Site, as documented in the 2020 Final Permit, requires the following:

(1) The Permittee shall propose the methods and locations for off-site disposal to EPA for review and approval. Permittee's proposal shall include measures to maximize the transport of such waste material to off-site facilities via rail, to the extent practicable. Permit, page 58.

The full 2020 Final Permit is available at: https://semspub.epa.gov/src/document/01/650440

Please let me know if you have any further questions.

Sincerely,

JOHN KILBORN Digitally signed by JOHN KILBORN
Date: 2022.11.02 15:02:19 -04'00'

John W. Kilborn
Senior Enforcement Counsel
Office of Regional Counsel
US EPA, Region 1

Enclosure:
Attachment 1: EPA Evaluation of Rail Usage

cc: via electronic mail only:
Dean Tagliaferro, EPA
Anni Loughlin, EPA
Josh Fontaine, EPA
Christopher Smith, EPA
Chris Ferry, EPA Records Center.

Attachment 1
EPA Evaluation of Rail Usage
GE - Rest of River

The following are excerpts copied from the documents where EPA evaluated the use of rail for the GE Rest of River Remedy. The title of the document is listed below (bolded and underlined) with a URL to the document and the excerpts following. Please note, footnotes and citations are omitted from the excerpts. Any additional notes by EPA to help clarify the text are bracketed and in red. Note that this list includes the primary documents where rail was evaluated and is not all inclusive of every record where rail transportation is mentioned.

Remedy Alternative Abbreviations:

TD 1 /TD 1 RR – All Material Disposal in an off-site permitted landfill or landfills via truck (TD 1) or rail (TD 1 RR)
TD 2 – All material disposition in a local in-water Confined Disposal Facility (CDF) or facilities
TD 3 – All Material disposition in a local on-site Upland Disposal Facility or Facilities
TD 4 – Chemical extraction of PCBs from removed from all sediment/soil
TD 5 – Thermal Desorption of PCBs from removed from all sediment/soil
TD 6 – Hybrid Alternative in the 2020 Permit; on-site disposal in the UDF and off-site disposal of a minimum of 100,000 Cubic yards.

August 2012 – Revised Comparative Analysis of Alternatives, Appendix B to Regional Response to NRRB Comments on the Site Information Package:
https://semspub.epa.gov/work/01/519424.pdf

Attachment B-10, Cost Assumptions Memorandum for SED9/FP 4 MOD

Page 11 - Costs for railroad infrastructure, railroad transport, and disposal at rail-ready facilities were developed in 2011 and re-confirmed in 2012.

Railroad Infrastructure – Approximately $300,000 in railroad infrastructure upgrades would be needed to construct several spurs to provide access to a transfer and loading station. The costs associated with construction of rail spurs to access the rail staging areas from the main railroad line are included in the TD 1 RR capital costs. The construction cost associated with the staging areas necessary to support the rail spurs and loading areas is included in the SED 9 Reach 5A staging area costs. GE confirmed in the RCMS that the existing track from Housatonic, MA, to Pittsfield, MA, was of sufficient design to handle rail cars loaded with up to approximately 110 tons of material. No costs for upgrade of the existing track were included based on GE's analysis.

Transportation and Disposal Pricing – Two rail-ready facilities, one for TSCA and one for non-TSCA, were considered. Table 13 summarizes the costs [all costs in dollar per tonne] for both transportation to and disposal at these facilities:

Table 13 - Summary of Transportation and Disposal Costs for TD-1 RR		
	Non-TSCA	TSCA
TD-1 RR		
Facility	Model City	EQ
Type	Non-TSCA	TSCA
Location	Niagara Falls	Michigan
Rail Transport Price ($/ton)	$43	$110
Disposal Price	$55	$85
Total T&D	$98	$195
CMS Truck Transport		
GE TD 1 Transport	$56	$130
GE TD 1 Disposal	$44	$90

[The remedy in the 2016 Permit is referred to as "SED 9/FP 4 MOD" and "TD 1 RR."]

Summary of Overall Costs

Table 14 summarizes the cost by reach for SED 9/FP 4 MOD and TD 1 RR.

Table 14 – Summary of Overall Costs by Reach

Reach	Total Costs
Reach 5	$223,660,000
Reach 6 - Wood's Pond	$42,805,000
Reach 7	$29,860,000
Reach 8 - Rising Pond	$23,200,000
Long-Term Monitoring	$8,733,000
Total Cost of Alternative before T&D	$328,000,000
Transportation and Disposal (TD 1 RR)	$228,000,000
Total cost of Alternative SED 9/FP 4 MOD/TD 1 RR	$556,000,000

The total present-worth of the alternative is $412,000,000, which includes $229,000,000 for non-TD costs and $183,000,000 for the TD portion of the alternative.

May 2014 Comparative Analysis of Remedial Alternatives for the General Electric (GE)-Pittsfield/Housatonic River Project Rest of River:
https://semspub.epa.gov/src/document/01/557091

Page 60 - EPA also evaluated an additional alternative based on TD 1 but specifying transport of excavated material by rail be maximized; this variation is termed TD 1 RR.

Page 61 - TD 1 RR (off-site disposal with rail transport) would provide protection of human health and the environment equivalent to TD 1 with respect to PCB-contaminated sediment and soil, with some additional protection afforded by the rail transport component, which would reduce the effects on surrounding neighborhoods from truck traffic. There would be somewhat greater on-site short-term

impacts due to the need to construct a small rail yard and loading facility at some point along the existing rail right-of-way.

Page 62 - All of the treatment/disposition alternatives would control the potential for PCB-contaminated sediment and soil to be released and transported within the river or onto the floodplain, although some alternatives would provide more effective control of such releases than others. TD 1 (or TD 1RR) best meet this criterion, followed by TD 3.

Under both TD 1 and TD 1 RR, placement of the removed PCB-contaminated sediment and soil in a permitted off-site landfill or landfills would effectively isolate those materials from being released into the environment.

Page 65 - Implementation of TD 1, TD 1 RR, TD 2, and TD 3 would isolate the removed sediment/soil from potential human and ecological exposure because the material would be contained in structures designed specifically for that purpose…

TD 1 would not cause any adverse long-term environmental impacts in the Rest of River area because it would involve off-site transport and disposal of the PCB-contaminated materials.

TD 1 RR would also not result in adverse long-term environmental impacts in the Rest of River area. The rail yard and loading facility would be demobilized following completion of the remedy and the area restored to its former condition.

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<u>Reduction of Toxicity:</u>

TD 1 through TD 3 (including TD 1 RR) would not include any treatment processes that would reduce the toxicity of, or directly affect, PCB concentrations in the removed sediment and soil.

<u>Reduction of Mobility:</u>

All of the alternatives would reduce the mobility of PCBs in the sediment and soil. In TD 1, TD 1 RR, TD 2, and TD 3, these materials would be removed and disposed of in off-site permitted landfill(s) (TD 1 and TD 1 RR) or permanently contained within on-site CDF(s) (TD 2) or an upland disposal facility (TD 3).

<u>Reduction of Volume:</u>

TD 1, TD 1 RR, TD 2, and TD 3 would not reduce the volume of PCB contaminated material.

Page 68 - All the treatment/disposition alternatives would produce some short-term adverse impacts on the environment, but to varying degrees depending on the duration and scope of the alternative. TD 1 would have the least impacts of all the TD alternatives, requiring only access roads and staging areas for loading of vehicles for off-site transport. TD 1 RR would require the construction of a rail yard and loading facility at some point along the existing rail right-of-way and would require approximately the same amount of access roads and staging areas as TD 1.

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3.8.2 Carbon Footprint – GHG Emissions

TD 1 RR would have significantly lower GHG emissions than TD 1 because the emissions due to off-site truck transport would be replaced by the much lower emissions resulting from off-site transport via rail.

3.8.3 Impacts on Local Communities

TD 1 RR, due to its use of rail transport, would result in a significant decrease in impacts to local communities due to reduced off-site truck traffic.

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Table 24 Estimated Off-Site Truck Trips for Treatment/Disposition Alternatives

Alternative	Off-Site Truck Trips for Lower-Bound Volume	Off-Site Truck Trips for Upper-Bound Volume
TD 1	15,900 (2,000)	243,000 (6,100)
TD 2	See Note 3	See Note 3
TD 3 (see Note 4)	1,450 (180)	68,000 (3,600)
TD 4	15,900 (2,000)	243,000 (6,100)
TD 5 (with reuse)	13,300 (1,700)	190,500 (4,800)
TD 5 (without reuse)	14,300 (1,800)	218,900 (5,500)
TD 1 RR	0 (0) Note 7	0 (0)

Notes:

1. Truck trips estimated assuming 16-ton capacity trucks for importing material and equipment to the site, 20-ton capacity trucks for transporting excavated materials, and 20% bulking factor in the trucks.
2. The number in parentheses represents average annual truck trips.
3. Truck trips estimated for TD 2 range from 5,600 to 19,500 and do not include the truck trips that would be necessary for off-site transport and disposal of materials that are not placed in the CDF(s). As such, these estimates are not comparable to the numbers of truck trips listed for the other alternatives.
4. The lower bound of this range for TD 3 is based on construction of an upland disposal facility at the Woods Pond site and the upper bound is based on construction of such a facility at the Forest Street site. Note that the Woods Pond site is located in a State-designated Area of Critical Environmental Concern, and Forest Street is in close proximity to the ACEC.
5. A 10% volume reduction of sediment/soil after treatment has been assumed for thermal desorption treatment (TD 5).
6. For TD 5 with reuse, it is assumed that approximately 50% of the floodplain soil treated by thermal desorption would be reused on-site and that all remaining materials would be transported off-site for disposal.
7. It was assumed for the purpose of this analysis that there would be zero off-site truck trips; however, use of trucks may be necessary under certain conditions.

TD 1 RR will maximize the transport of the contaminated soil via rail; therefore, off-site truck traffic will be minimized. Again, however, the magnitude of the differences among alternatives varies with the removal volume. The additional truck traffic would also increase the risk of traffic accidents along transport routes. An analysis of potential risks from the increased off-site truck traffic that would be associated with the treatment/disposition alternatives in terms of potential fatalities and non-fatal injuries is presented in Table 25.

Page 71 - Because TD 1 RR would require no off-site truck traffic, no injuries or fatalities are associated with this alternative because it was assumed for the purpose of this analysis that there would be zero off-site truck trips; however, it may be necessary to use trucks instead of rail under certain conditions.

Table 25 Incidence of Accident-Related Injuries/Fatalities Due to Increased Off-Site Truck Traffic

Impacts	TD 1	TD 2	TD 33	TD 4	TD 5 (with Reuse)	TD 5 (without Reuse)	TD 1 RR
Non-Fatal Injuries							
Number	4.34 – 67.03	See Note 2	0.03 – 1.60	4.11 – 62.87	3.44 – 49.24	3.70 – 56.59	Note 4
Average Annual Number	0.45 – 1.28	See Note 2	0.0002 – 0.084	0.51 – 1.57	0.43 – 1.23	0.46 – 1.41	0
Probability[1]	99 – 100%	See Note 2	3 – 80%	98 – 100%	97 – 100%	98 – 100%	-
Fatalities							
Number	0.20 – 3.14	See Note 2	0.002 – 0.07	0.19 – 2.94	0.16 – 2.31	0.17 – 2.65	0
Average Annual Number	0.02 – 0.06	See Note 2	0.0002 – 0.004	0.02 – 0.07	0.02 – 0.06	0.02 – 0.07	0
Probability[1]	18 – 96%	See Note 2	0.2 – 7%	18 – 95%	15 – 90%	16 – 93%	-

Notes:

1. Probability indicates the probability of at least one injury/fatality.
2. The estimated risks of accidents for TD 2 are based only on the truck trips necessary to transport materials to the site for the construction of the CDF(s) and do not consider the truck trips for off-site transport of the materials that would not be placed in the CDF(s). As such, those risks are not comparable to the estimated risks for the other treatment/disposition alternatives (which consider all removed materials). Under the scenario evaluated, the risks estimated for TD 2 are 0.01 to 0.02 fatalities (with a 1% to 2% probability of at least one fatality) and 0.13 to 0.46 non-fatal injuries (with a 12% to 37% probability of at least one injury).
3. The lower bound of this range for TD 3 is based on construction of an upland disposal facility at the Woods Pond site and the upper bound is based on construction of such a facility at the Forest Street site.
4. It was assumed for the purpose of this analysis that there would be zero off-site truck trips; however, use of trucks may be necessary under certain conditions.

Page 72 - There would also be health and safety risks to site workers implementing each of these alternatives. For TD 1 and TD 1 RR, these risks would consist of risks to the truck drivers and, in the case of TD 1 RR, railroad employees, and to the employees of the off-site disposal facilities, rather than to on-site remediation workers, and thus, were not quantified.

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3.8.6 Summary of Short-Term Effectiveness

…Estimates of off-site truck trips and traffic accident risks from that truck traffic indicate that, for the range of volumes (excluding TD 2), TD 1 and TD 4 would involve the most off-site truck trips and cause the most injuries related to such transport, followed closely by TD 5, with far fewer off-site truck trips and transport-related injuries for TD 1 RR and TD 3…

3.9.1 Ability to Construct and Operate Technology

Each of the technologies under evaluation can be constructed and operated as necessary. For the alternatives involving landfilling, hazardous materials landfills are routinely constructed and operated, and the techniques involved are well known and of demonstrated effectiveness. Any necessary transportation infrastructure, including construction of a small rail yard and loading facility in the case of TD 1 RR, would similarly present no difficulties.

Page 74 - TD 1 and TD 1 RR would be conducted in accordance with the requirements of applicable federal, state, and local regulations relating to the off-site transport and disposal…

TD 1 RR would require an access agreement for the rail siding and loading facility, which would be assumed to be temporary.

In conclusion, there is a clear distinction among the alternatives with respect to this criterion: TD 1 would be easiest to implement, followed closely by TD 1 RR, with TD 2 and TD 3 being the most difficult and time consuming to implement from an administrative perspective, whereas TD 4 and TD 5 would experience similar difficulties from a technical perspective. Construction of either an in-water CDF (TD 2) or an on-site hazardous waste landfill (TD 3) would face considerable public opposition and would also potentially conflict with the designation of the area as an ACEC.

Page 75 –

3.9.4 Ease of Undertaking Additional Corrective Measures

The primary constraint on the ability of any of the treatment/disposition alternatives to accommodate additional corrective measures relates to their ability to deal with increased volumes of contaminated material. In the case of TD 1 and TD 1 RR, there is some uncertainty regarding the future availability of the necessary capacity in off-site landfills, which could present issues if it was deemed necessary to undertake additional corrective measures that would require removal of additional volumes of contaminated soil and/or sediment…

3.9.6 Coordination with Other Agencies

…The Commonwealth of Massachusetts has expressed a strong preference for treatment/disposition alternatives that will permanently relocate contaminated materials in licensed out-of-state facilities, with a strong preference for the use of rail. Of the evaluated alternatives, only TD 1 and TD 1 RR could satisfy this requirement.

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3.9.7 Availability of On-Site or Off-Site Treatment, Disposal, and Storage Facilities

For TD 1 and TD 1 RR, there are uncertainties regarding the future availability of the necessary capacity in off-site landfills for the alternatives that have the larger volumes and longer durations. In addition, TD 1 RR has some additional uncertainty related to the timing and availability of rail transport capacity…

3.10 COST

The estimated cost ranges for each treatment/disposition alternative, including total capital cost, estimated annual OMM cost, and total estimated present worth are summarized in Table 27 and are taken from GE's RCMS, except for TD 1 RR, which is summarized in Attachment 8… TD 1, TD 1RR, and TD 2 are more costly than TD 3, but less costly than TD 4 and TD 5.

Page 77 – For the reasons discussed above, EPA believes that of all the treatment/disposition alternatives, 2 TD 1 RR is best suited to meet the General Standards in consideration of the Selection Decision 3 Factors.

Attachment 8 *– Cost Assumption for SED 9/FP4 MOD, Memo from Tony Delano to Dean Tagliaferro dated 15 May 2014*

> **Page 18** – Note on Table 12 – "All material was assumed to be non-TSCA and was priced at the rate of $56 for transportation via trucking and $44 for disposal. The total price for T&D via rail

would be $98 (based upon 2010/2011 pricing), or $2 less per ton, resulting in a slightly lower overall cost"

Attachment 14 – Section 404 CWA Wetlands and Floodplain Analysis

Page 10 - For TD 1/TD 1RR (off-site disposal), there are no wetlands or floodplains impacts associated solely with this disposal option beyond what would occur under a specific set of sediment/floodplain combination alternatives discussed above...

Page 11 –

B. Section 404/ Wetlands Impacts

...Alternatives TD 1/TD 1RR and TD 3 have no [wetland] impacts (unlike TD 2) and clearly meet the project purpose (unlike TD 4 and TD 5) and are, therefore practicable alternatives to conducting work in wetland areas.

C. Flood Plan Impacts

...Alternatives TD 1/TD 1 RR, and TD 3 can be conducted outside the floodplain (unlike Alternative TD 2) and clearly meet the project purpose (unlike Alternative TD 4 and TD 5) and are therefore practicable alternatives to floodplain development.

June 2014 - Statement of Basis for EPA's Proposed Remedial Action for the Housatonic River "Rest of River" https://semspub.epa.gov/src/document/01/558621

Page 25 - GE provided a qualitative evaluation and concluded that rail transport would be technically feasible; therefore, transportation could be conducted either by trucks or by rail. However, GE did not provide cost information. EPA further evaluated the feasibility of rail and developed a cost estimate. This modification is also referred to in this document as TD 1 RR. The estimated cost for this alternative ranges from $55 to $832 million for disposal via truck and $52 to $787 million for disposal via rail, depending on which Combination Alternative it is paired with. For the preferred sediment/floodplain alternative [of "SED 9/FP 4 MOD"], the estimated cost of disposal via truck is $308 million and via rail is $287 million.

Page 35 - All five alternatives would involve disposition of the sediment, riverbank soil, and floodplain soil in a disposal facility, either directly or after treatment. The three alternatives involving disposal only are TD 1/TD 1 RR (off-site disposal in permitted landfill(s)), TD 2 (on-site in a Confined Disposal Facility (CDF)), and TD 3 (on-site in upland disposal facility or facilities). The other two alternatives would involve treatment, either by a chemical extraction process (TD 4) or by thermal desorption (TD 5), followed by disposition of the byproducts of the treatment and the treated soil/sediment.

Page 37 - The alternative with off-site disposal (TD 1/TD 1 RR) will have short-term impacts during transport of the waste material; however, the impacts of truck traffic may be greatly reduced by reliance on rail transportation. The short-term impacts to workers are all relatively the same under all alternatives. All alternatives have the potential for accidental releases of various PCB-contaminated materials during transportation to off-site or local disposal or treatment facilities. However, actions will be taken to prevent these potential releases. All alternatives would require truck traffic.

October 2016 - Response to Comments on Draft Permit Modification and Statement of Basis for EPA's Proposed Remedial Action for the Housatonic River "Rest of River" GE-Pittsfield/Housatonic River Site: https://semspub.epa.gov/src/document/01/593922

EPA Response 56, 373, 430, 485, 493, 495, 530 – Page 235: EPA notes the support for off-site disposal and the use of rail transport. EPA disagrees with the assertions, the characterization of EPA's analyses, and the conclusions of GE favoring on-site upland disposal of excavated material. Based in part on GE's evaluation in the Revised CMS, EPA performed a thorough comparative analysis of the alternatives with respect to the criteria specified in the Permit, analyzing the key tradeoffs among different treatment/disposal alternatives. That comparative analysis supports EPA's determination of the selected treatment/disposal alternative as best suited to meet the Permit's General Standards in consideration of the Permit's Selection Decision Factors, including a balancing of those factors against one another. See Comparative Analysis, pages 59-77. Contrary to GE's assertions, as the Comparative Analysis demonstrates, there are distinctions between GE's favored approach and the selected remedy with respect to the Permit's General Standards; additionally, the Permit's Selection Decision Factors other than cost include criteria and sub-criteria clearly favoring off-site disposal, and thus the difference in the cost criterion is by itself not the sole factor to consider. More detailed responses to comments on the individual criteria and sub-criteria are in Section III.F.2 below.

EPA Response 92 – Page 235: A location for the rail facility has not been selected as part of the Final Permit Modification. The Final Permit Modification requires GE to maximize the transport of material to off-site facilities via rail, to the extent practical and requires GE to submit to EPA, for review and approval, a Work Plan for the Siting of the Temporary Centralized Contaminated Materials Processing/Transfer Location(s). It is in this Work Plan that GE is required to propose the rail transfer location. In this Work Plan, the Final Permit Modification requires GE to describe the criteria to be used in proposing the siting of the temporary material processing/transfer location(s), the process to coordinate with affected communities regarding the operation of the temporary location(s), and an evaluation of the potential location(s) using the criteria. GE will also propose in this or other Work Plans the methods to transport the material to this facility(s). Depending on the location of the facility(s) and the type and location of the material to be transported, the method of transportation to the facility could include trucks, slurries pumped through piping, and/or a combination of these and other methods.

EPA Response 547, 562, 564, GE Attachment A – Page 241: …The location of a potential rail transfer facility not been proposed or selected, so a delineation of specific habitat impacts necessarily has not been done. The Final Permit Modification requires that GE propose criteria and evaluate potential rail transfer locations using that criteria and submit this evaluation to EPA for review and approval. Final Permit Modification at II.H.1.d. (Work Plan for Siting of Temporary Centralized Contaminated Materials Processing/Transfer Locations). This process will be used to evaluate any potential effects on habitat. Based, in part, on this comment, EPA clarified Section II.H.1.d. to note that this plan covers a rail transfer facility as well.

EPA Response 549, 565 – Page 243: In the Comparative Analysis, the total GHG emissions estimated for the treatment/disposition alternatives were provided as ranges based on the potential volumes of sediment and soil that would require disposal or treatment. For TD 1 (off-site disposal to a licensed

facility by truck) the GHG emission estimates ranged from 19,000 to 290,000 tonnes. GHG estimates for TD 1 RR (off-site disposal to a licensed facility by rail) were not presented in the Comparative Analysis.

GE's estimate of GHGs for TD 1 is within the ranges estimated by EPA in its Comparative Analysis. These GHG calculations are largely based on estimated roundtrip miles from the site to the off-site disposal facilities multiplied by vehicle and fuel emission factors, fuel economy values and other factors. Estimates of GHG emissions can vary extensively based on the assumptions (e.g., the assumed disposal facilities and associated roundtrip distance) used in the calculations.

EPA assumed different disposal facilities in its Comparative Analysis for off-site disposal via truck and via rail. In response to this and other comments (See Response 7, Section IX.E of this Response to Comments), EPA used GE's methods with EPA's assumed disposal facilities and conducted an additional analysis to refine the estimate of GHGs, including an estimate for GHGs for off-site disposal using rail. Based on EPA's assumptions and the estimated volume of the remedy, EPA calculates the GHGs for off-site disposal via trucks to be approximately 100,000 tonnes and for off-site disposal via rail to be 50,000 tonnes, both of which are below GE's estimates. For additional details, see Response 7. Although these estimates are greater than those for on-site disposal, they are less than estimated by GE, and are within the range of GHGs used in EPA's Comparative Analysis. Since both EPA's and GE's estimates are within the range cited in the Comparative Analysis, neither of these estimates would change the overall evaluation of remedy selection criteria.

EPA Response 564 – Page 252: As EPA stated, TD-1 RR would have habitat impacts at staging areas. Within that term EPA included any rail loading facility, which could have temporary habitat impacts during the temporary period the rail loading facility was used. The habitat impacts at a permanent landfill operation would include the temporary habitat impacts during implementation, and any impacts permanently from the use of that property for permanent disposal of contaminants. EPA discusses the habitat impacts of GE's different TD-3 locations in EPA Response 547 *et al. above*.

EPA Response 566 – Pages 253 to 255: EPA disagrees with GE's assertions and conclusions. First, GE ignores the term "impacts to nearby communities" taken directly from the Permit's description of the Short-Term Effectiveness criterion. That being the case, EPA's Comparative Analysis used as an appropriate metric the amount of truck miles travelled (both on-site and off-site) that affects the community, which would exclude truck traffic once vehicles are on major limited access highways such as the Massachusetts Turnpike. Using this metric, as summarized in the tables below, total truck traffic impacts for TD-1 are approximately 16% greater than for TD-3 (Woods Pond), whereas, truck traffic impacts from TD-3 (Forest Street) are almost 5 times greater than for TD-1, and truck traffic impacts from TD-3 (Rising Pond) are more than 3 times greater than for TD-1. (See table below). Clearly TD-3 has community impacts from trucking that are comparable to, and in fact in 2 of 3 scenarios, are significantly greater than, the impacts of TD-1.

Second, with respect to on-site truck trips required by TD 1 RR, EPA's Comparative Analysis in fact pointed out that it would require truck trips to transport materials to the rail loading facility. The complete sentence referenced by GE from the Comparative Analysis is: "The alternative with off-site disposal (TD 1/TD 1 RR) will have short term impacts during transport of the waste material; however the impacts of truck traffic may be greatly reduced by reliance on rail." Statement of Basis, at page 37. The comparison is between transport of waste to off-site facilities via rail or via truck. As shown in the tables below, transport of waste by rail would result in approximately 53% (72% using EPA estimates) of

the truck miles needed to transport the waste by truck to the Massachusetts Turnpike. (See table below). Even accounting for the construction of a rail facility, transport by rail would be 58% (78% using EPA estimates) of the truck miles as opposed to that by truck. (See table below). Clearly, the truck traffic impact to the community for the transport of waste is reduced by using rail compared to the transport of waste to on-site facilities.

GE states correctly that EPA did not factor in the truck miles needed to construct the rail facility. Given the lack of detail supporting GE's estimate of the miles of truck traffic needed to construct the rail facility, EPA cannot comment on the accuracy of GE's estimates. However, accepting GE's assumptions for the number of truck miles needed to construct the rail facility and the three Upland Disposal Facilities, the amounts of truck traffic are considerably less for the rail facility than for any of the upland disposal facilities.

Estimated Vehicle Miles on Local Roads Required for Construction of Rail and Upland Disposal Facilities.

	TD 3- Upland Disposal Facility			TD -1 Off-site	TD-1RR
	Woods Pond	Forest Street	Rising Pond	N/A	Rail loading Facility
GE Estimate	118,100	3,399,200	131,200	0	61,700

From GE Table 4.

For an appropriate comparison of the traffic impact, EPA derived the estimated truck mileage that affect the community for the on-site and off-site transportation of waste material:

For TD 1 GE has estimated 82,599,200 vehicle miles would be required to transport materials to licensed disposal facilities (GE 2014, Table 4). EPA estimates less than 1.5% or approximately 1,100,000 vehicle miles of the total TD 1 vehicle miles would be on local roads. In Table 5 of its 2014 comments, GE provided estimates of vehicle miles required for TD 1 RR, and the three proposed TD 3 Upland Disposal Facilities. For the removal volume associated with SED 9/FP 4 MOD, GE has estimated a total of 835,000 vehicle miles, 1,584,800 miles, and 3,100,100 miles would be required to transport removed material on local roads to Woods Pond, Forest Street, and Rising Pond, respectively. In addition, EPA performed an independent calculation of GE's mileage calculations for the three Upland Disposal Facilities to ensure that EPA's calculations for truck mileage to the Massachusetts Turnpike were performed consistently with the calculations for estimates to the Upland Disposal Facilities. The following table provides the estimated vehicle miles on local roads required for transportation of soil and sediment removed for SED 9/FP 4 MOD. As is shown in the Table, EPA and GE's estimates are similar.

Estimated Vehicle Miles on Local Roads Required for SED 9/FP 4 MOD for Transport to Upland Disposal Facility, Rail Loading Facility or Entrance to Massachusetts Turnpike.

	TD 3- Upland Disposal Facility			TD -1 Off-site	TD-1RR[33]
	Woods Pond	Forest Street	Rising Pond	Massachusetts Turnpike	Rail loading Facility
EPA Estimate	837,250	1,469,500	3,016,600	1,110,200	799,250
GE estimate –Table 5	835,200	1,584,800	3,100,100	N/A	581,900

Notes:

Cubic yards removed is based on volumes from Table 1 of Attachment 6 to the Comparative Analysis with an assumed density factor of 1.62 tons per cubic yard.

Assume approximate midpoint of each Reach.

Assumes 16-ton trucks for transportation to TD 1 RR and TD 3 Upland Disposal Facilities and 20-ton trucks for disposal to TD 1 off-site facilities.

Combining the two tables above gives the following overall truck miles in the community associated with different disposal options.

Estimated Vehicle Miles on Local Roads Required for SED 9/FP 4 MOD for Construction of Facilities and Transport of Waste.

	TD 3- Upland Disposal Facility			TD -1 Off-site	TD-1RR
	Woods Pond	Forest Street	Rising Pond	Massachusetts Turnpike	Rail loading Facility
EPA Estimate	955,350	4,868,700	3,147,800	1,110,200	860,950
GE estimate – Table 5	953,300	4,984,000	3,231,300	N/A	643,600

Therefore, using these truck miles as a metric for the effect on the community of truck traffic related to disposal options, the option with the least impact is TD-1RR, followed by TD-3 (Woods Pond) and TD-1. TD-3 (Forest Street) and TD-3 Rising Pond have significantly greater impacts than the other options. Thus EPA's conclusions in the Statement of Basis are correct.

EPA Response 567 – Page 256: EPA recognizes that pumping from Woods Pond would reduce truck traffic for TD 3. The same method could also be used for TD 1 RR, for which GE has assumed that the rail facility would be close to Woods Pond. Similarly, a reduction in off-site truck mileage for TD-1 could also be achieved by this method, since the pumping of sediment would move material closer to the Massachusetts Turnpike entrance prior to the placement into trucks.

EPA has estimated the use of a pumping approach for dredged materials removed from Reach 5C, Woods Pond and nearby Backwaters to the TD-1RR loading facility would reduce the onsite truck trips for TD-1 RR by more than half – to approximately 43,000 trips (~ 3,300 per year).

EPA Response 569 – Page 256: EPA considered the estimated injuries/fatalities of different alternatives in EPA's Comparative Analysis (Section 3.8.3, Table 25, page 71). The Comparative Analysis provides a quantitative estimate of the range of injuries/fatalities for off-site disposal via trucks and for on-site

disposal. With respect to off-site disposal via rail, the Comparative Analysis does not include a similar level of quantification, but EPA explains "no injuries or fatalities are associated with the alternative because it was assumed for purpose of this analysis that there would be zero off-site truck trips; however, it may be necessary to use trucks instead of rail under certain conditions." Comparative Analysis, Section 3.8.3, page 71.

EPA has not independently verified GE's estimates, but even assuming GE's estimates to be accurate, GE's estimates generally fall into the ranges of the EPA Comparative Analysis for TD 1 and TD 3.

	EPA Comparative Analysis	**GE's estimates**
TD 1 (Off-site disposal via truck)	4.34 - 67.03 non-fatal injuries and .2 - 3.14 fatal injuries	39 non-fatal injuries and 1.8 fatal injuries
TD 3 (On-site disposal)	0.03 – 1.6 non-fatal injuries and 0.002 - 0.07 fatal injuries	0.06 to 1.6 non-fatal injuries and 0.003 to 0.075 fatal injuries

EPA Response 570 – Page 257: EPA's Comparative Analysis is clear that EPA considered health and safety risks for all alternatives, including the off-site disposal alternatives (TD 1, and TD 1 RR):

> *There would also be health and safety risks to site workers implementing each of these alternatives. For TD 1 and TD 1 RR, these risks would consist of risks to the truck drivers and, in the case of TD 1 RR, railroad employees, and to the employees of the off-site disposal facilities, rather than to on-site remediation workers, and thus, were not quantified. Comparative Analysis at 3.8.5.*

While not quantified for all aspects of the remedy, EPA plainly did consider the risks to remediation workers from the selected remedy.

Additionally, GE's conclusion about worker risks not providing a remedy selection basis misses the point of the Permit's remedy selection process. Pursuant to the Permit, EPA performed a thorough comparative analysis that included each sub-criterion of a Permit criterion, and of each Permit criterion itself. Based on that and other information in the Administrative Record, EPA based its determination of the selected remedy as best suited to meet the Permit's General Standards in consideration of the Permit's Selection Decision Factors, including a balancing of those factors against one another. EPA's determination was not based on any individual sub-criterion such as worker risks, but by an analysis of all nine criteria (and their sub-criteria) pursuant to the Permit.

EPA Response 571 – Page 258: EPA has, through the 2014 Comparative Analysis and the Responses above, identified the short-term impacts from the relevant alternatives, and would not necessarily agree with GE's conclusion to the extent it differs with EPA's Comparative Analysis or the Responses above. In general, both TD 3 and TD 1 RR are preferable for certain components of this criterion, while less preferable for other components. TD 1 and TD 1 RR are/have similar results except for, most notably, the truck-related impacts of TD 1. Overall, EPA's analysis of the Short-term Effectiveness is only one part of EPA's overall evaluation of the Permit criteria, on which EPA based its determination of the selected remedy as best suited to meet the Permit's General Standards in consideration of the Permit's Selection Decision Factors, including a balancing of those factors against one another. Any clarifications or

information presented in the comments on Short-term Effectiveness has not altered EPA's overall determination.

EPA Response 575 – Page 267 to 268: In the Comparative Analysis, EPA included one cost for on-site landfilling of $100 million, regardless of the landfill location. This estimate is within the range provided by GE. For disposal by rail, the primary difference between EPA's estimate of $287 million and GE's $314 million estimate appears to be the construction of the rail transfer facility, which GE estimates at between $20 and $30 million. EPA's estimate for a rail facility is approximately $300,000. All other costs appear to be in the same range. For off-site disposal via truck, EPA's estimate of $308 million was based on unit pricing provided in the 2008 CMS and 2010 Revised CMS developed by GE. GE apparently did not use that pricing to prepare its comments. However, disposal pricing via trucking is highly dependent on current fuel prices, and the availability and pricing from disposal facilities. As has been demonstrated in the last three years, the price of fuel has extremely large fluctuations. Thus, if one were to obtain overall disposal pricing today, they would likely be less than GE estimated. Also, it is not practical to continually revise cost estimates after a corrective measures study is conducted, and then continually conduct analysis comparisons. Therefore, EPA believes its cost estimates of $287 million for rail and $308 million for disposal via trucking is appropriate for comparison purposes. Thus, EPA estimates the difference in cost for off-site and on-site disposal ranges from $160 to $245 million, whereas GE's range is $250 to $305 million.

Regardless of the method used to estimate disposal costs, EPA acknowledges that the cost difference between on-site and off-site disposal is significant. Based in part on GE's evaluation in the Revised CMS, EPA performed a thorough comparative analysis of the alternatives with respect to Cost, analyzing the key tradeoffs among different treatment/disposal alternatives. EPA's analysis is demonstrated in Section 3.10 of EPA's Comparative Analysis. In addition, EPA's analysis of Cost is only part of EPA's overall evaluation of the Permit criteria, on which EPA based its determination of the selected remedy as best suited to meet the Permit's General Standards in consideration of the Permit's Selection Decision Factors, including a balancing of those factors against one another. See Comparative Analysis, pages 76-77. Moreover, except as otherwise specified in the Response to Comments, the comments, upon EPA evaluation, do not make a significant difference to the Comparative Analysis or EPA's determination. Any clarifications or information presented in the comments on Cost has not altered EPA's overall determination.

EPA Response 105 – Page 330 to 331: In the Final Permit Modification, EPA has not made final determinations on the location of any access roads and on-site staging areas. In addition, the use of rail and river have not been ruled out of further consideration. In fact, Section II.B.5 of the Final Permit Modification specifies that GE should maximize the transport of materials off-site via rail to the extent practicable. In addition, the Corrective Measures in the Final Permit Modification requires that in Reach 5A the performance of removal and capping generally use engineering methods employed from within the river channel. Final decisions will be made during the remedial design process; EPA plans to have significant community and stakeholder involvement during the process of EPA's review of GE remedial design submittals dealing with access roads and staging areas.

EPA Response 6 – Page 352 to 353: EPA presented estimates of injuries and fatalities due to increased truck traffic and risk to remediation workers in the Comparative Analysis Tables 19 and 20, for floodplain and sediment response alternatives, including the proposed remedy, SED 9/FP 4 MOD. These estimates

exclude risks related to disposition of the material. The remedy in the Final Permit Modification did not change significantly from the proposed remedy, and, therefore, the estimates in Tables 19 and 20 in the Comparative Analysis are still reasonable.

In addition, Tables 25 and 26 in the Comparative Analysis present estimates of accident-related injuries and fatalities due to implementation of various treatment/disposition alternatives, excluding off-site disposal by rail. These estimates were based on analyses conducted by GE in their Revised CMS, Appendix N, and were not calculated using the particular volume of material that the selected remedy will likely produce (990,000 cubic yards). Instead, the estimates are expressed as ranges that account for all of the remediation alternatives presented in the Revised CMS.

GE has provided an estimate of accidents /injuries for off-site disposal via rail based on the 2014 Draft Permit Modification (See tables from GE's October 2014 comments).

EPA recognizes that these risk calculations are based on assumptions that could potentially overestimate or under-estimate injuries and fatalities. Risks to remediation workers are largely based on estimated labor hours for various occupational categories, multiplied by category-specific hourly fatality rates provided by the Bureau of Labor Statistics. Traffic accident risks are determined by the total vehicle miles traveled multiplied by a fatality or injury rate estimated by using publically available data from the United States Federal Highway Administration, the National Highway Traffic Safety Administration (NHTSA) Fatality Analysis Reporting System, and the NHTSA General Estimates System (GE's Revised CMS-Appendix N). In the case of rail transportation, estimated accident-related injuries and fatalities are based on train miles traveled multiplied by non-fatal and fatality rates estimated using publically available data from the Federal Railroad Administration Office of Safety Analysis (GE's 2014 comments on the Draft Permit Modification).

Estimates of accident-related injuries and fatalities may vary significantly based on the assumptions (i.e., hours worked or total miles traveled) used in risk calculations.

More specific detail on the assessments related to truck traffic can be found in Appendix N to GE's Revised CMS, in EPA's Comparative Analysis, and in GE's 2014 comments on the Draft Permit Modification.

EPA Response 30 – Page 366: The Statement of Basis includes a summary of all alternatives presented by GE in its Revised CMS and that were considered by EPA in addition to the Preferred Alternative. Five alternatives were considered for treatment and/or disposition (TD) of removed sediment, riverbank soil, and floodplain soil from the Rest of River. These alternatives are as follows:

TD1: Off-Site Disposal in Existing Licensed Landfill(s) (EPA's Preferred Alternative);
TD2: Local Disposal in Confined Disposal Facility (CDF);
TD3: Local Disposal in an On-Site Upland Disposal Facility;
TD4: Chemical Extraction; and
TD5: Thermal Desorption.

Alternatives TD2 and TD3 do not require offsite disposal therefore there was no need to discuss transport by rail.

The Final Permit Modification (Section II.B.5.b) describes the disposal component of the selected remedy as:

> *The Permittee shall propose the methods and locations for off-site disposal to EPA for review and approval. Permittee's proposal shall include measures to maximize the transport of such waste material to off-site facilities via rail, to the extent practicable.*

While there is a preference for the use of rail to dispose of the material offsite, it will be necessary to utilize trucks, roadways, and staging areas within the area being remediated.

2020 - Statement of Basis for EPA's Proposed 2020 Revisions to the Remedial Action for the Housatonic River "Rest of River": https://semspub.epa.gov/src/document/01/647211

Page 31 - TD 1 and the portion of TD 6 requiring off-site disposal both have very little long-term adverse impact on human and ecological receptors on the site. TD 3, and the on-site portion of TD 6 would isolate the removed sediment/soil from exposure because of the structures built specifically for the purpose of containing them. The 2014 Comparative Analysis notes two other distinctions: first, that TD 1 would not have long-term environmental impacts on the site, TD 1 RR, despite building a rail loading facility, would also not result in adverse long-term environmental impacts because the rail yard and loading facility would be demobilized following completion of the remedy and the area restored to its former condition; and second, that depending where the TD 3 location was built, there was the potential for alteration in habitat due to the operation of the facility. In TD 6, the Woods Pond location has been specified for the Upland Disposal Facility. The Upland Disposal Facility's operational footprint is part of an existing sand and gravel facility in close proximity to two other solid waste disposal facilities, with less impact to habitat than the other two potential upland disposal facilities evaluated under TD 3 (the two other GE-proposed sites were "Forest Street" site in Lee, and the "Rising Pond" site in Great Barrington; see the GE 2010 Revised CMS for details). Therefore, TD 1/1 RR would have the least impact on habitat. TD 3 and TD 6 would have a similar impact assuming Woods Pond was the TD 3 location.

In summary, the long-term adverse human health and environmental impacts would be least with TD 1, next least with TD 6, followed by TD 3.

Page 33 - With regard to impacts to the environment, the 2014 Comparative Analysis stated that of the alternatives evaluated at that point, TD 1 would have the least impact, requiring only access roads and staging areas for loading of vehicles for offsite transport. TD 1 RR would require construction of a temporary rail yard and loading facility along with access roads and staging areas, and TD 3 would have impacts depending on the habitat and operational footprint of the facility chosen among GE's three proposed sites. TD 6, being a hybrid of TD 1 and TD 3, would have the relatively lower impact of TD 1 for the materials being taken off-site, and slightly more impact than TD 3 because TD 6 has a larger footprint. All the TD alternatives have risk of accidental releases of PCB-contaminated materials. The use of hydraulic dredging and pumping, if feasible, for TD 6 would significantly reduce its impact on the environment by minimizing the truck transport of waste to the Upland Disposal Facility.

Regarding carbon footprint and greenhouse gas (GHG) emissions for transport to final disposal facility, excluding the construction of the rail facility or upland disposal facility, the calculated GHG emissions

anticipated to result from treatment/disposition alternatives are in the Administrative Record. TD 1 (164,800 tonnes) and TD 1 RR (70,000 tonnes) both are estimated to generate more GHG emissions than TD 6 (31,000 tonnes). TD 3 is estimated to generate the least amount of GHG emissions at 6,600 tonnes. For overall combined remedy GHG, see page 27.

All of the alternatives will have short-term impacts to the local communities in the Rest of River area, such as disruption, noise and other impacts. TD 6, due to its use of hydraulic pumping of excavated material, if feasible, can eliminate nearly 50,000 truck trips to the Upland Disposal Facility. For truck trips, the estimated total and annual number of trips are 81,700 (6,100 average annual trips) for TD 1, with an additional 1,200 trips to construct the rail facility for TD 1RR, 81,700 (6,100 annual average) truck trips for TD 3, with an additional 2,400 truck trips to construct the disposal facility, and 47,000 (3,800 annual trips) for TD 6, and an additional 3,100 truck trips to construct the Upland Disposal Facility. Thus, TD 1 would have the highest number of truck trips, followed by TD 1 RR and TD 3, with TD 6 having the lowest estimated number of truck trips. For overall combined remedy truck counts, see page 27.

As with the 2014 Comparative Analysis's description, TD 1's mitigation measures related to increased truck traffic, TD 3's would address the increase in truck traffic as well as impacts associated with construction and operation of the disposal facility. TD 6 would similarly include efforts to avoid, minimize or mitigate impacts, including the hydraulic pumping component to reduce truck traffic, and the Quality of Life Compliance Plan, which will ensure that GE's work planning addresses potential impacts on communities. EPA has committed to have public and stakeholder input on this plan. Those two items are improvements to the measures taken in TD 1 and TD 3.

The estimated risk to remediation workers and transportation related injuries and fatalities associated with the transport of waste to the Upland Disposal Facility and/or off-site disposal were estimated as follows: 44 injuries and 2.1 fatalities for TD 1, (39 and 6.75 for TD 1RR), 7.5 and 0.35 for TD 6, and 5.4 and 0.25 for TD 3. Based on that information, the incidence of potential injuries and fatalities resulting from accidents associated would be greatest for TD 1 and TD 1RR, followed by TD 6 and then TD 3.

Page 33 to 34 - Each of the technologies can be constructed and operated as necessary. Landfills designed to accept remediation waste are routinely constructed and operated; techniques are well known and demonstrated as effective. For TD 3 and TD 6, Statement of Basis – Housatonic River 34 landfills have been proven to be reliable in reducing and/or eliminating exposure to hazardous materials. Transportation of hazardous and non-hazardous material by truck or rail (TD 1) is a routine technology with appropriate controls to safeguard public and workers. Overall, TD 1 would be easiest to implement relative to regulatory and zoning restrictions, followed by TD 1 RR and TD 6. TD 3, with a hazardous waste landfill, would be the most difficult and time consuming from an administrative perspective. The zoning issues related to TD 6 as described above, are equally applicable to TD 3 for the Woods Pond Site.

For TD 3 and TD 6, the capacity of the Upland Disposal Facility is known and is sufficient to receive a volume of material greater than the proposed remedy. However, that capacity is finite and if there is any additional remediation that is very large and the capacity of either TD 3 or TD 6 is exceeded, then off-site disposal would be necessary. TD 1, and TD 6, to a much lesser extent, would have some uncertainties related to potential issues if the capacity of off-site landfills is less in the future.

All of the alternatives can readily be monitored with existing and well-established techniques and monitoring is included in the Draft Revised 2020 Permit as part of any comprehensive OMM program. Alternative TD 3 encountered substantial local and state opposition, even though it was not EPA's selected remedy in the 2016 Permit. In contrast, TD 6 has been endorsed by local municipalities, including all but one of the stakeholder groups that took part in mediated settlement (i.e., GE, the Towns of Lee, Lenox, Stockbridge, Great Barrington, and Sheffield, the City of Pittsfield, the State of Connecticut, the Massachusetts Audubon Society, the Berkshire Environmental Action Team, and C. Jeffrey Cook), but some stakeholders are not satisfied with the approach outlined in TD 6. TD 1 RR has the least concerns from agencies/stakeholders due to disposal off-site, and use of rail to minimize truck traffic. TD 1 is equivalent to TD 1RR on this metric but for the use of rail.

TD 1, TD 1 RR and TD 6 all have elements of off-site disposal. There are uncertainties about the future availability of necessary capacity in off-site landfills, however, there doesn't appear to be any current shortage of off-site capacity. For TD 3, construction and use of an on-site facility for all of the materials, regardless of concentration, would be technically implementable, but perhaps difficult to implement for other reasons. To a certain extent, TD 6 would face similar concerns as TD 3, but these concerns are reduced by TD 6's requirement that only low level soil and sediment are allowed in the on-site location, and the support of municipal organizations as documented in the Settlement Agreement. Moreover, TD 6 will save capacity (to the extent that it does become limited) in those off-site permitted landfills for material that is required to be disposed of in such a manner.

Page 35 - The estimated cost ranges for the treatment/disposition alternatives, including total capital cost, estimated annual OMM cost, and total estimated present worth are summarized in Table 3. Overall, TD 3 is the least costly at $63 million, TD 6 second-least costly at $141 million, with TD 1 ($308 million) and TD 1 RR ($287 million) more costly. For total remedy costs and costs in 2020 dollars, see Table 3.

July 2020 - Determination on Remand and Supplemental Comparative Analyses of Remedial Alternatives for the General Electric (GE)-Pittsfield/Housatonic River Site Rest of River:
https://semspub.epa.gov/src/document/01/647210

Pages 13 – Like all active remediation alternatives, the 2020 Alternative has the potential for short-term impacts to the community. There will be impacts to the areas and community adjacent to the specific areas being addressed at a certain time. The project is estimated to last 13 years, but the effects of the excavation and capping on any particular neighborhood will be more limited. As described below in Section II.G. below, the impacts of truck traffic can be reduced greatly by reliance on rail transportation, and by use of hydraulic dredging and pumping to the Upland Disposal Facility. EPA has coordinated extensively with the Massachusetts Department of Fish and Game on any potential effects of the cleanup on wildlife and habitat.

Page 21 to 22 – Due to the increase in soil/sediment removal, the 2020 Sediment/Floodplain Alternative component would increase the estimated GHG emissions from 171,000 to 196,000 metric tons ("tonnes"). See Table 12. This 14% increase is proportional to the 14% increase in soil/sediment to be removed. This increase does not take into account any decrease related to the revised disposal alternative (TD 6) discussed below, which leads to an overall decrease in the impact. Combining the

floodplain/sediment remediation with the Hybrid 22 Disposal approach, the total estimated GHG emissions for the 2020 remedy is 227,000 tonnes compared to 335,800 tonnes for the 2014 Alternative using trucking or 241,000 tonnes using rail. Thus, the overall impact from GHG emissions is approximately 6% to 32% less for the 2020 Proposed Revised Remedial Action compared to the 2016 Permit Remedy.

Page 22 – The risk of non-fatal injuries and fatal injuries to implement the 2020 Floodplain/Sediment Alternative due to implementation of the remedy (excluding transport of excavated material) is 14 and 0.14 respectively. This is slightly higher than the 2014 Alternative estimate of 9.2 (12 with rail) and 0.10 (0.12 with rail) respectively. See Table 14. This does not take into account any decrease in trucking related injuries/fatalities to the revised disposal alternative (TD 6) discussed below.

Page 24 – In 2014, EPA performed a comparative analysis of five alternatives for treatment/disposition of excavated material in Rest of River. EPA reached an overall conclusion that the TD 1RR alternative, off-site disposal at licensed existing TSCA facilities with a preference for rail, was best suited to meet the General Standards of the 2000 Permit in consideration of the Selection Decision Factors of the 2000 Permit. TD 1RR was incorporated into the 2016 Permit. GE appealed EPA's selection of TD 1RR to the EAB. GE's preferred alternative from its 2010 Revised CMS was TD 3, on-site disposal of all material at one of three GE-proposed sites.

This Supplemental Comparative Analysis compares a new alternative, titled TD 6 (Hybrid Disposal), against TD 1 (off-site disposal via trucking), TD 1RR (off-site disposal via rail) and TD 3 (Woods Pond location only). TD 6 is the Hybrid Disposal approach provided for in the Settlement Agreement, and which has been incorporated into the Draft Revised 2020 Permit in Sections II.B.5. and II.B.6. The 2014 Comparative Analysis is still valid except where it is explicitly modified in this Supplemental Comparative Analysis. Please refer to the 2014 Comparative Analysis for additional details.

The Hybrid Disposal approach includes elements of both TD 1/TD 1RR from the 2016 Permit and TD 3 from the GE's 2010 Revised CMS, and provides, generally, for disposal off-site at existing licensed TSCA facilities of material that equals or exceeds 50 milligrams per kilogram ("mg/kg") on average of PCBs, or otherwise that is classified as RCRA hazardous waste. Notwithstanding these requirements, a minimum of 100,000 cubic yards of the most contaminated material must be disposed of off-site. Other lower-level excavated material may be disposed of at an on-site Upland Disposal Facility.

Page 27 – The 2000 Permit provides for treatment/disposition alternatives to be evaluated pursuant to nine criteria in the 2000 Permit, along with any other relevant information in the Administrative Record for the modification of the 2000 Permit. In its Revised CMS, GE submitted its analysis of the nine criteria in the 2000 Permit for TD 1/TD 1RR (off-site disposal) and TD 3 (on-site disposal) and three other alternatives. EPA's 2014 Comparative Analysis included evaluation of TD 1/TD 1RR and TD 3. The Hybrid Disposal alternative described above, also referred to as TD 6 for this purpose, was not reviewed in the GE and EPA submittals. However, since it is essentially a combination of components from TD 1 and TD 3, the evaluation of the nine criteria for TD 6 can be in part based on the analysis of each of those alternatives. Immediately below is an evaluation of the Hybrid Disposal alternative – TD 6 – pursuant to the nine criteria from the 2000 Permit. Following that, in Section II.G. is the Supplemental Comparative Analysis of off-site disposal (TD 1/TD 1RR), on-site disposal (TD 3 - Woods Pond) and Hybrid Disposal (TD 6).

Page 31 – This Supplemental Comparative Analysis compares three alternatives: TD 1/TD 1RR, TD 3 (Woods Pond location only), and the Hybrid Disposal alternative, which for purposes of this Supplemental Comparative Analysis is designated as TD 6. In this section, the three alternatives are analyzed against the relevant criteria.

Page 39 –

9. Cost

The estimated cost ranges for the treatment/disposition alternatives, including total capital cost, estimated annual OM&M cost, and total estimated present worth, are summarized in Table 3. Overall, TD 3 is the least costly at $63 million, TD 6 second-least costly at $141 million, with TD 1 ($308 million) and TD 1RR ($287 million) more costly. For total remedy costs and costs in 2020 dollars, see Table 3.

10. Overall Conclusion for Treatment/Disposition Alternatives

For the reasons discussed above, EPA believes that among TD 1/TD 1RR, TD 3, and the new TD 6 Hybrid Disposal alternative, TD 6 is best suited to meet the General Standards in consideration of the Selection Decision Factors.

[See Pages 31-39 and Tables 1, 3, 12, 13a & b, 14 and 15 for the rest of the comparative analysis]

December 2020 Response to Comments on EPA Draft 2020 Permit Modification to the 2016 Reissued RCRA Permit and Associated Statement of Basis for EPA's Remedial Action for the "Rest of River" Portion of the Housatonic River:
https://semspub.epa.gov/work/01/650441.pdf

EPA Response II.C.4 - Page 33: This comment refers to requests for changes to existing railroad ties, which is outside the scope of the Permit. The Rest of River cleanup is associated with the unacceptable risks posed by PCBs and the remedy is being selected to address those risks, thus reducing the amount of PCBs in the environment at this site. Air emissions from sources outside of the cleanup are not within the purview of this process.

EPA Response II.K.4 – Page 75: EPA concurs with several commenters that it is preferable if the waste could be transported to off-site facilities via rail. As such, the Revised Final Permit requires GE to use rail, to the extent practicable, for disposal of waste off-site. As with other operational details, the potential use of rail for transport of materials will be evaluated in more detail during the remedial design effort. As was the case in the 2016 Permit, the Revised Final Permit does express a preference for the use of rail specifically for the off-site disposal of materials, but consideration will also be given regarding the potential use of rail to transport materials to the UDF. The technical information provided by Housatonic Railroad will be shared with GE for their consideration in developing their work plans.

EPA Response II.K.5 – Page 75: Before the use of rail can be selected as the mode of transportation, to either the UDF or off-site disposal facilities, an evaluation of a location(s) for the construction of rail spurs to load the material onto rail cars needs to be thoroughly conducted. Also, if there is only one or two suitable locations for a rail loading facility, then the benefits of rail to minimize truck traffic will be

less than may be anticipated, especially for local travel, because of the need to transport the waste from the point of generation to the rail loading facility, primarily via trucks.

Therefore, EPA believes the current language for off-site disposal is appropriate and that the use of rail for disposal into the UDF or for off-site disposal should be further evaluated during the design phase.